COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

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PL/I Is Hard to Learn, Error-Prone, AF Told

By a CW Staff Writer

WASHINGTON, D.C. – PL/I programs, while they may take less time to code, usually take longer to check out because of programming errors, according to a 283 page report prepared for the Air Force.

Compared to Cobol and Fortran, PL/I has just as many error-prone rules, is unsuitable for use by the nonprofessional programmer (which seems to mean anyone without mathematics training), and is harder to learn. In comparison with Cobol, there was no evidence that PL/I was more than "about equal" for business data processing applications.

Thorough Investigation

The report was written by Raymond J. Rubey and other staff members of Logican, Inc., of San Pedro, Calif., after one of the most thorough investigations ever undertaken of the properties of the high level languages. The study involved the selection of programmers with equivalent experience in PL/I and one of the other languages (Cobol, Fortran, or Jovial), the predefining of standard programs, and the writing and checking out of each program in PL/I and another language. Accurate records of system problems (as opposed to language problems) were kept.

After each test, the programmer was asked to rate the two languages in various ways, such as which had more error-prone format rules. Analysts then checked these responses in the light of the programmer's background and overall consistency and came up with their own opinions.

The results showed that while PL/I had many attractions, there were significant areas where other languages maintained a superiority.

Advantages, Deficiencies

Attractions of PL/I were conciseness and suitability to the professional programmer. (All

(Continued on Page 16)

Qualitative Language Comparison Summary

Key:
- P - Programmer's choice
- A - Analysts' choice
- O - PL/I
- ● - Other language
- – - No preference

Language Attribute	PL/I: COBOL				PL/I: FORTRAN					
	Gross Payroll		ALOREP		MMI		TSME		VIG	
	P	A	P	A	P	A	P	A	P	A
1. Suitability to this problem	●	●	O	O	O	O	O	O	–	–
2. Suitability to small/medium problems	●	●	●	●	O	O	O	O	–	O
3. Suitability to large problems	O	–	–	–	O	O	O	O	●	O
4. Generality	●	–	–	–	O	O	O	O	O	O
5. Ease of learning	●	●	O	●	●	●	●	●	●	●
6. Ease of use	●	–	–	–	O	O	O	O	●	O
7. Balance between generality and simplicity	O	O	O	O	O	O	O	O	O	O
8. Conciseness	O	O	O	O	O	O	O	O	●	O
9. Naturalness to this problem	●	●	–	–	O	O	O	O	O	O
10. Balance between conciseness and naturalness	●	O	O	O	O	O	O	O	–	O
11. Consistency	●	–	–	–	O	O	–	–	–	–
12. Productivity in coding this problem	●	●	O	O	O	O	O	O	●	O
13. Balance between ease of reading and writing	●	●	–	●	O	O	O	O	–	O
14. Fewer error-provoking rules	●	–	O	–	●	–	●	–	–	–
15. Ease of learning and use for this problem	●	●	O	O	O	O	O	O	●	●
16. Ease of learning and use for this area	●	●	O	●	O	O	O	O	O	O
17. Suitability for non-professional programmer	●	●	O	●	●	●	●	●	●	●
18. Suitability for professional programmer	O	O	O	O	O	O	O	O	O	O
19. Machine independence	O	–	●	–	O	O	O	O	O	O
20. Subsetability for this application	●	O	O	O	O	O	–	–	O	O
21. Ease of use in statement modification	O	O	O	O	O	O	O	O	O	O
22. Ease of use in complicated logic control	O	O	O	O	O	O	O	O	O	O
23. Ease of use in unit manipulation	●	O	O	O	O	O	O	O	O	O

GROSS PAYROLL: Processes payroll transactions against employee master, prepares weekly report.
ALOREP2: Processes airlift data cards, builds data files, edits for format validity, prints error messages.
MMI: Simple simulated interactive system for the evaluation of simple equations.
TSME: Simulates the behavior of a multiprogramming system and gives status reports on the system at key times.
VIG: Computes the analytical terminal state position and a selected guidance parameter at a given point on a vehicle trajectory.

UCC Making Renewed Bid To Annex Common Carrier

By a CW Staff Writer

DALLAS – University Computing Co., carrying out its announced intention to set up its own common carrier, has created a new subsidiary, Microwave Transmission Corp. The subsidiary, in turn, has agreed in principal to acquire TransAmerican Microwave, Inc., a Los Angeles firm that operates a microwave link between there and San Francisco. The $1.5 million purchase is subject to approval by the Federal Communications Commission.

UCC, after making an unsuccessful bid last spring to buy a controlling interest in Western Union, announced Aug. 5 that it would set up its own common carrier.

University Computing, which operates what it describes as a multinational computer utility network, has also moved to strengthen its financial position through a merger with the Gulf Insurance Co. [see story on page 12].

Expansion Planned

Microwave Transmission will concentrate on the development of a microwave transmission system and communications business in several sections of the country, UCC announced.

The new subsidiary "reflects our continuing interest in microwave systems, the growth of CATV, and other special purpose communication needs of the future," said UCC President Sam Wyly. TransAmerican currently serves a number of cable television companies on the West Coast.

Charles J. Wyly, Jr. has been

(Continued on Page 16)

First Centurys

DAYTON, Ohio – The first production models of the new NCR Century series of computers were delivered to NCR centers around the country last week, immediately after deliveries had been made to a number of home office departments. The first customer deliveries are expected to be made next week, *Computerworld* has learned.

Paul Lappetito, assistant vice president in charge of Century products, said that he thought that this would help reduce the "credibility gap" quite a lot. "Now people can come into our centers and see that the Century is real," he said.

'Poverty' School Plans to Make Profit

By a CW Staff Writer

NEW YORK – An EDP training school with a very different outlook has been opened in the South Bronx. The school has three aims: to teach the hardcore unemployed and underemployed, to train them more fully than other schools, and to make money doing it.

The Heurcon Institute, which opened late in August, is the first of 40 such schools expected to open in ghetto areas across the country. All except the South Bronx and a future Brooklyn school are expected to be franchised operations run by the ghetto residents.

The institute teaches a course in computer input technology, which covers keypunch, CRT data display, keyboard to tape, and Teletype entry systems.

High Scores

To qualify, applicants must score at least 110 (the New York City average) on the keypunch aptitude test, according to Thomas Mann, director of the institute. Most applicants score from 150 to 210, he said.

Tuition for the course, which can be taken either as an eight week day course or a 16 week night course, is $366. But the school doesn't turn anyone away just because they can't pay the fee, Mann said.

The school plans to make its profit by charging a $400 employment fee to companies which hire its graduates. In return for paying no more than they would to an employment agency, the companies will get employees with a minimum speed of 7000 strokes an hour who are familiar with all types of input devices, Mann said.

"These people will be prepared for the future as well as the present," Mann said.

Schools will open next in Harlem, Watts, Detroit, and Newark.

No Grants

Heurcon Institute, a subsidiary of Heuristic Concepts, Inc., a real-time systems and display consulting firm, is not using any public funds and doesn't want to, Mann said. The belief is that ghetto people will respond better if they know they are becoming involved with private enterprise rather than another government program.

(Continued on Page 15)

IBM to Release Call 360/ Basic 'As Is'

Special to Computerworld

WHITE PLAINS, N.Y. – The Call 360/Basic software, which IBM has been using in its service centers for some months, will be released to IBM customers "as soon as it is ready," an IBM spokesman told *Computerworld* this week. Its release is being delayed pending completion of the documentation, he said.

How IBM installations are able to use the software and to provide reliable service to their customers under these "unready" conditions was not explained.

'As Is' Again

When the software is released, it will be on an "as ...", the same condition attached to the forthcoming release of Call360/DataText which was announced last week [CW, Oct. 2].

DataText Delayed

Release of the DataText software also is being delayed "until after the documentation is complete," the IBM spokesman said this week. He refused to estimate when this might be.

When Basic and DataText are released, it is unclear whether IBM will keep users informed of changes. IBM's statement was that "alterations to, and maintenance of, programs are the customer's responsibility.

Previous to the announcements, both Basic and DataText had been considered proprietary products. Requests for them from IBM customers had been rejected.

On the Inside

Unexpected Anniversary Creeps Up on Industry — *Page 4*

SPA Division Chairmen Vote on Reorganization — *Page 11*

Applications 9
Calendar 2
Contracts 6
Editorials 4
EDPromotions 6
Education 8
Expansions 6
Financial 12-13
New Products 7
Orders & Installations ...6
Societies 11
Software 11

Credit Group Gets Use of ITT Service

HOUSTON – International Telephone and Telegraph Corp. and Associated Credit Bureaus, Inc., have signed an agreement to provide the 2100 ACB member bureaus with computerized credit reporting services.

The new program will provide credit bureaus affiliated with ACB a choice between using time shared computer services at nearby computer centers operated by ITT Data Services and individually owned computers operated by the ITT division or credit bureaus.

ITT in cooperation with Credit Bureau Automation, a wholly owned computer services subsidiary of ACB, will complete the development of this new computerized credit reporting system which is custom designed to meet the specialized requirements of credit bureaus.

The ITT/ACB system of computerized credit reporting will provide consumers and credit grantors with improved speed and efficiency in credit reporting, the announcement said.

"This computer system also will make a substantial contribution to the protection of consumer privacy," said John L. Spafford, ACB executive vice president. "It will provide increased efficiency in file maintenance and improved file security through information storage in computers."

Vice President Don R. Carpenter makes a final inspection of a reconditioned 514 reproducing punch at the new TLW center.

'Reconditioning' Plant Is Opened by Resale Firm

Special to Computerworld

ATLANTA – TLW Computer Industries has completed its new Re-Manufacturing & Technical Center. Company President Tom L. Williams announced that Don R. Carpenter, formerly plant manager for Whitaker Business Machines Co., has been named vice president for manufacturing.

The company serves the "second user" computer and unit record equipment market. Principal activities of the new center are inspection and reconditioning of keypunches, verifiers, and allied data processing equipment plus installation of customer modifications. Previously, facilities for these services had been leased by TLW.

Williams said the facility will accelerate delivery schedules and improve quality control "insuring that our equipment will remain under the manufacturer's maintenance agreement."

TLW's new plant covers 7000 square feet. In addition to its engineering and mechanical departments, it provides warehousing and sales office space for the firm's banking, motor freight, insurance, and hospital marketing divisions. Other sales offices and corporate headquarters are located in Atlanta's Executive Park.

Williams said that the new plant would also meet the requirements of TLW's principal subsidiaries, International Automation Co. and International Computer Leasing Co.

System Wins Franklin Institute Medal

PHILADELPHIA – The inventor of a method for automatic identification of rolling railroad cars has been named to receive the 1968 George R. Henderson Medal of The Franklin Institute, it was announced by Dr. Wynn Laurence LePage, chairman of the institute's board of managers.

Francis H. Stites, senior engineering specialist with the Sylvania Co., a subsidiary of General Telephone & Electronics, will be presented the award Oct. 16 as part of the institute's Medal Day ceremonies. The Henderson medal is bestowed for "meritorious inventions or discoveries in the field of railway engineering."

Known as the KarTrak automatic car identification system, Stites' invention affords the country's railroads instantaneous car reporting, economically, on a uniform basis in the United States, Canada, and Mexico. With the system, each railroad can automatically locate all of its rolling stock.

Cars Coded

The Kartrak system employs highly reflective labels, newly developed vertical scanners, and decoders. Vertical labels, with horizontal bands of red, white, and blue, are fastened to the sides of freight cars, cabooses, and locomotives by adhesive backing. The material reflects light 200 times brighter than any known paint.

Color combinations and relative height of the bands signify essential information such as owner, shipper, and destination that is read by the stationary scanner and interpreted by the decoder. The scanner is located along the tracks at key points – entrances and exits of railroad terminals and interchange points, among others. It can read each car label anywhere within a 9 foot height and as many as four times while a train travels 100 miles per hour. Multiple scans provide a built-in check against error.

Information is passed from the scanner to the decoder, which is the indoor portion of the system. The decoder turns the scanner on and off automatically, analyzes incoming data, and translates data from the label into a readable printout.

Stites developed his version of an ACI (automatic car identification) system on behalf of Sylvania, which competed with other firms under specifications from the ACI Ad Hoc Committee, Data Systems Division of the Association of American Railroads. Field tests run by the association's research center on the Penn-Central Railroad, and subsequent laboratory tests, led to the recommendation from the AAR's board of directors that the KarTrak system be accepted as the standard system for use on all railroad equipment in the United States, Canada, and Mexico.

Notice to Readers

We would appreciate it if you would examine your new mailing label. *Computerworld* has a new computerized subscription fulfillment program that is now in its second week on-line. The conversion process has gone smoothly but, of course, there were errors. We hope that most of these will be corrected by next week. If there is an error on your label, please forward it, with the correction, to:

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'Street' System Eases Broker's Paperwork Load

Special to Computerworld

NEW YORK – A software approach to the back office paperwork problem, which has forced Wall Street to stop trading on Wednesdays, has been installed by Computer Applications, Inc. at L.M. Rosenthal & Co., Inc.

Called the Street system, and currently based on a PDP-8/I computer, it operates through a set of keyboard terminals and can handle 1000 transactions an hour.

Harvey A. Dubner, vice president of Computer Applications, explained that the idea was to come up with the simplest possible system that would solve 90% of the specific problems and allow the computer to be fed with additional information, such as the names of infrequently traded bonds, when necessary, so that all trading transactions could be processed.

IBM Forms New Divisional Group

ARMONK, N.Y. – Three IBM divisions (Office Products, Federal Systems, and Information Records) and two subsidiaries (Service Bureau Corp. and Science Research Associates, Inc.) have been put under a new group executive, Vice President Robert W. Hubner.

Hubner formerly was marketing vice president, a post he had held since 1965.

IBM also announced that Robert H. Howe has been appointed director of marketing. Howe, director of market planning since 1964, will be responsible for the headquarters service, systems engineering, and marketing planning staffs.

R.W. Hubner R.H. Howe

Error Falsely Blamed on Computer

Special to Computerworld

NEW YORK – The error originally blamed on "a malfunctioning computer" that forced *The Wall Street Journal* to reprint on Sept. 19 a corrected version of the entire Sept. 17 over-the-counter stock market quotations could more correctly be blamed on "a malfunctioning computer operator."

Robert Steinberg, vice president in charge of computer operations at Scantlin Electronics, Inc. – the company that runs the quotations for United Press International which in turn sells them to *The Wall Street Journal* – told *Computerworld* that the error was caused when an operator chose the wrong option during tabulation.

The operator had an option for dumping or loading information during the run. The operator, by mistake, loaded out-of-date information, he said.

The routine has been changed so that the option is no longer available, Steinberg said. It was the first major mistake since the company began compiling the information a year ago, he said.

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10. Government/Military
11. Other____

CALENDAR

S M T W T F S S M T W T F S S M T W T F S S M T W

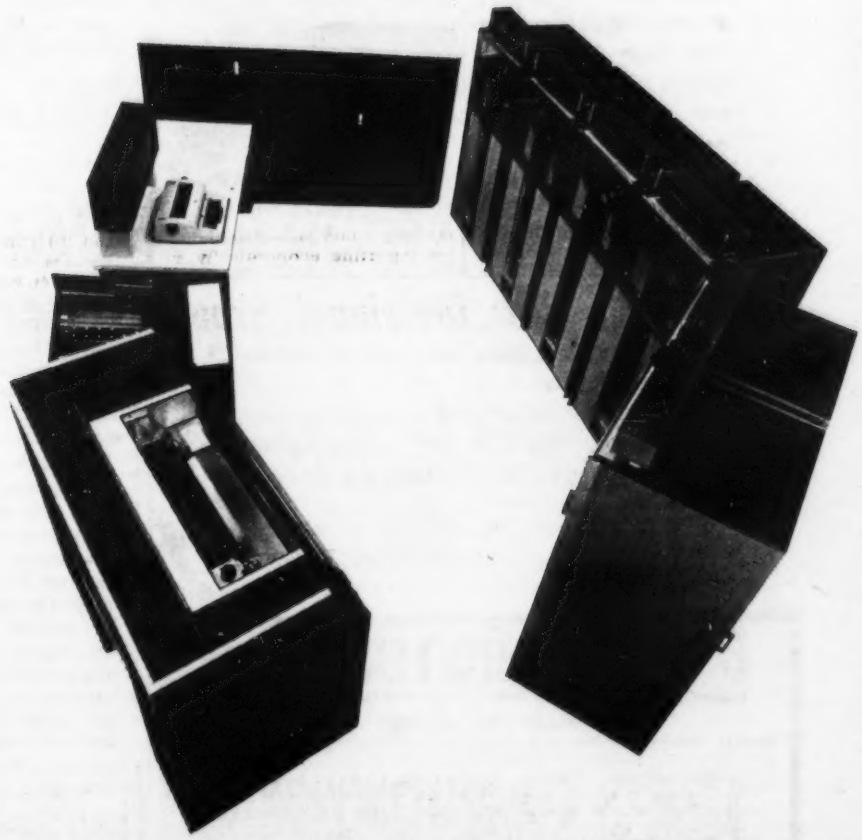
Oct. 14-16, New Orleans, La. – Fourth Annual Meeting of Echo. Contact: Richard A. Crenshaw, Director of Data Processing, Hillcrest Medical Center, 1120 S. Utica Ave., Tulsa, Okla. 74104.

Oct. 20-23, St. Louis, Mo. – Systems and Procedures Assn. International Systems Marketing. Contact: Richard L. Irwin, SPA, 24587 Bagley Rd., Cleveland, Ohio 44138.

Oct. 23-25, Gaithersburg, Md. – Second Annual Symposium of the American Society for Cybernetics. Contact: Rudolph Constantine, ASC Secretary, Univac, 2121 Wisconsin Ave., N.W., Washington, D.C.

Everyone's talking about fourth generation computers

(We're shipping them)



IC-4000—one of Standard's fourth generation computers. 500 nanosecond control memory compiles up to 4,000 FORTRAN statements per minute—other models offer time sharing—optimized problem adaptation. Full information and documentation on request.

The big operational difference in fourth generation computers is micro-programming. The big user difference is a tremendous improvement in cost/performance ratio over a broadened area of application. Through micro-programming, the user can adapt the logic design of the computer to optimize the system for different types of problems. Machine language independence and problem adaptability make fourth generation computers extremely versatile and remarkably economical. They embody all the technical advancement of third generation machines—and then some.

We shipped the first of the fourth generation computers and have shipped more of them than anyone else.

If talk isn't enough, call Standard Computer.

Standard Computer

Standard Computer Corporation, 1411 West Olympic Boulevard, Los Angeles, California 90015 (213) 387-5267

Editorials

A Worthwhile Target

The plaintiffs in the Los Angeles welfare case seek what they have termed a "fail-safe" system. Their request refers to programming as well as to hardware.

We all would like to see failure-proof programming. The question is: is there any reason why we can't have it?

Computer programming at the moment is not fail-safe. Irrespective of whose fault it may be, this is a fact.

Computerworld does not know if fail-safe programming is possible, but it does believe that it is a very worthwhile goal. We recommend that every programmer and data processing manager personally consider the problem and use the concept at least as a target.

A Matter of Discrimination

Donn Parker's letter taking us to task for anthropomorphizing computers is very apropos.

His suggestion is that we try to stop any usage which appears to be capable of misleading people into thinking that computers are alive. He quotes our own headlines and articles like "The Computer Will Help . . ."

This appears to us to go too far. In the case in point the computer did help. Just like a timetable helps a traveler, or a soapbox helps an orator. Any misunderstanding which occurs results from ignorance – not from misuse of language.

Where the language *is* misused is where moral judgments such as "erring" and active items such as "evicting" are ascribed to computers.

A campaign simply aimed at *dangerous* anthropomorphizing would stand a much greater chance of acceptance than one which tries to ban all anthropomorphizing.

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An Unexpected Anniversary

Has Life of Generations Doubled?

By a CW Staff Writer

October, 1968, will bring an important and unexpected anniversary. It marks the four year, seven month point since the announcement of the System 360 in April, 1964. The time from the announcement of the first IBM 1401 system until they were made obsolete by the 360 announcement was – four years and seven months!

So the 360 already has lasted as long as the entire lifetime of the 1400 series, which can reasonably be thought of as the second generation systems.

And yet there is little call for the replacement of the 360 by another generation. There are various manufacturers claiming "fourth generation" hardware or software, and they are providing some very useful innovations – but by and large, "third generation" is still an adjective which conjures up the idea of being up to the minute, modern, etc.

An IBM 360/40 at work in the U.S. Department of Agriculture.

There is little talk in the gossip columns of the technical press of the imminent obsolescence of the System/360 – as there was in 1963 and 1964 regarding the 1400 series. The very quietness of the anniversary shows its importance.

Generations Lengthening

From a user's point of view, it looks as though the generations are lengthening – so that he has more time for planning. This is important. It also means that the lifetime of equipment will tend to be longer, so that the extended depreciation periods are more valid. This means that the money saving, third party leasing operations are more inviting than they were, because the equipment just isn't about to become obsolete so quickly. It means that third party (that is, people other than the hardware manufacturers) operations in general are becoming more practical, because there is time for outside firms to come to grips with specific problem areas, and to produce marketable answers, and to have sufficient time to secure a profit for themselves.

From IBM's point of view, the scene is one of great success – both of hardware and of planning. At this point IBM appears to have maintained its position in the industry, neither appreciably losing any of its domination nor gaining enough to force another antitrust suit against it, despite the fact that it holds a much more dominant position in computing than, say, General Motors does in the automotive industry. Exactly what IBM's current position is, is not clear. During the last two months, for instance, it has been reported in a major computer newsletter that IBM has increased its percentage by 3% to 73% – and in an equally prestigious monthly it was estimated that IBM was losing a point or two! Really its position, and that of the rest of the industry, looks much as it did in 1964, and it appears that the most prescient comment made at the time of the announcement occurred when Jack Hillegass, then editor of the Auerbach Standard EDP Reports, commented in his introduction to the 1964 System/360 report that the system design appeared "well calculated to maintain IBM's position" in the industry.

And it has done so.

Success – Through Planning for Failures

Not that there were not failures. In fact, *much* of the 360 line that IBM planned, turned out to be failures and had to be replaced. And there were omissions as well – vital omissions. The lack of any emulation or compatibility in the original line (except for the 1401/Model 30 case) turned out to be a disastrous underestimation of the problems involved in changing systems. Even now, many, if not most, installations which have made the changeover are still using second generation programs.

But these were simply errors of calculation – not of planning. And planning had taken the possibility of such errors into account. Pulling the 2 usec. 30, 60, 62, and 70 out of the line and replacing them with marketable systems was handled without any disturbance to the 360 concept – the family concept which had been assiduously marketed. Adding the 7000 series emulators was equally simple, using the microprogrammed technique which itself was the basis of the practicality of the "family" idea. Both possibilities were implicit from the very beginning in the marketing plans – both were necessary and both were successful.

Questions to Be Answered

But these are mere details – technical footnotes to history – beside the key fact that the overall result has been a clear lengthening of the time between generations while preserving the IBM position in the industry at optimum level. These are the two important items to be noted at this anniversary. These are what count. And these are the points on which we must concentrate – how it was done, and what it implies.

Next week we will look in some detail at the first point – how it was done.

Letters to the Editor

Anthropomorphism

To the Editor:

Your editorial "Newsweek Horrors" [CW, Sept. 18] describes a serious problem – the gross lack of understanding of computer technology on the part of the public which has created the giant electronic brain syndrome. You pointed out a typical example of one source of the problem by quoting a news magazine's personification of computers.

However, we who create our technology are as much to blame as the popular press. We do little to dispel the personified image of computers and even encourage it. Consider the following quotes from *Computerworld:*

"A computer will help students to choose more compatible roommates . . ."

"A computer has now joined the search for Camelot . . ."

"But Your Honor, the Computer said . . ." (Headline)

"Williams . . . credited his success to a computer in London that advised him on what course to follow."

"Multi-Lingual Computer Adapts Itself to Problem" (Headline)

"Mountaintop Airport Challenges Computer" (Headline)

"A computer hidden inside a century-old Cape Cod house has begun helping scientists to understand some of the mysteries of the sea."

(Continued on Page 5)

Letters to the Editor

(Continued from Page 4)

I have tried for four years without success to get ACM to establish a public relations and information function to correct this giant electronic brain image of computers which mystifies and terrifies the public. Several ACM chapters have started educational programs to explain our technology in responsible, professional ways to the public, but we need a coordinated nationwide effort which could be successful in spite of Clarke's Third Law: Any sufficiently advanced technology is indistinguishable from magic.

Donn B. Parker

Los Altos, California

See editorial comment. Ed.

What Shall We Call Them?

To the Editor:

I do not view the recent actions of free enterprise, noncomputer companies entering the highly competitive data services industry as a phenomenon [CW, Sept. 25]. Diversification is nothing new in our industrial society. There is nothing prohibiting them from exercising management decision making to add further income to their corporate structures. They must still operate in a fair and competitive market and measure up to the demands of this market.

My concern is not with their size, but rather the continued dilution, by suggestion, of the total data services industry through the application of another name – another splinter group.

The key word is service – whether it be machine operations, software, time sharing; commercial or scientific application; or any combination.

We are really keying in on information processing whether it emanates from independents, manufacturing oriented service centers, software companies, or the recent entry of companies offering diversification.

The goals are the same – to strengthen the total industry. It cannot be accomplished through new labels.

J.L. Dreyer
Executive Vice President

Adapso
New York

CW's point was not that the services they offered would be different from the services users can obtain from members of the Association of Data Processing Service Organizations. It was simply that a new (from the financial analyst's point of view) source of these services had appeared, and that there was no (financial analyst) category into which they could be put. Ed.

Computerworld welcomes comments from its readers. Preference will be given to letters of 250 words or less. *Computerworld* reserves the right to edit letters for purposes of clarity and brevity. Letters should be addressed to: Editor, Computerworld, 60 Austin St., Newton, Mass. 02160.

HONEYWELL COMPUTER USER?

Bunker-Ramo's GDP System Cuts Costs in Business EDP Operations And Reduces Turnaround Time 80% Over Conventional Languages...

GDP, a comprehensive generalized file management system, has been proven during one year of operational experience in various installations covering the entire spectrum of business data processing:

- File creation and maintenance
- File conversion and reformatting
- Sort, merge and match operations
- Information retrieval using logical operators
- Completely flexible report generation, including logical and mathematical operations at the time of report generation
- Mathematical computation at all phases of file processing
- A wide variety of card and tape utility programs

GDP features a near-English language module which can be used for information retrieval and report generation by non-programmers. GDP can be used with Honeywell H-200/1200/1250/2200 series computers of 24K or larger with 5 tapes. A disk version of GDP for Honeywell equipment as well as other versions for IBM 360/25/30 equipment are under development.

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TLW Computerworld Corner

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J.E. Guth, Jr.

A.M. Catalani

L.C. Patron

Memorex Forms Japanese Sales, Service Subsidiary

SANTA CLARA, Calif. – Memorex Corp. has formed a joint venture sales company with Kanematsu-Gosho, Ltd., Tokyo, to be named Nihom Memorex K.K. (Memorex Japan, Ltd.). The new venture has received the approval of the Japanese Ministry of International Trade and Industry. Eugene L. Rogers, Memorex vice president, said Nihon Memorex will be a complete sales and service concern and not just an importing firm. One of its services is a tape certification and rehabilitation center.

Efficient Leasing Opens Two New Regional Offices

NEW YORK – Efficient Leasing Corp. has opened regional offices in the Hanna Bldg., Cleveland, and 1100 Gendon Ave., Los Angeles, according to Jerome Kleinfield, president. William Newman will head the Cleveland office, and Alan Burke has been appointed regional manager of the Los Angeles office.

Avco/Huntsville Retains Equipment Sales As Agents

HUNTSVILLE, Ala. – Avco/Hunstville has retained Equipment Sales Co., Hamden, Conn. as sales agents in the northeast to handle the sale of data acquisition systems, structural loading systems, and other standard digital data system products. The agreement was announced by S.D. Moxley, manager of Avco's Huntsville operation, and Angus MacArthur, head of Equipment Sales.

Avco Computer Opens Station in Cambridge

WILMINGTON, Mass. – Avco Computer Services has opened a remote station at 251 Vassar St., Cambridge. The new station is equipped with an IBM Model 20 remote job entry terminal connected to the main computers at the company's facility here. According to Dr. William F. Brown, director, the Cambridge terminal is part of a planned expansion program to make ACS's services available to more computer users.

Burroughs' Philadelphia Unit to Get New Quarters

PHILADELPHIA – Under a long term, $1.8 million lease, Burroughs Corp. will occupy the major portion of the ground floor commercial space of the Kennedy House as its office equipment sales branch. The move was necessitated to make way for a new highway.

Computer Learning Expands Its Norfolk Center

FALLS CHURCH, Va. – The Norfolk Computer Learning Center has added 1500 sq.ft. of space for a new computer laboratory, according to Michael Biondo, Norfolk director. The center trains men and women in data processing and computer operations.

Systems, Inc. Opens Regional Office

PROVIDENCE, R.I. – Systems, Inc. has opened an office at 76 Cambridge St., Burlington, Mass., to service the Boston area in data processing consulting work. Joseph C. Burrows, president, said the office will be directed by William R. Moriarty.

Automatic Data Processing To Open a New Office

NEW YORK – Automatic Data Processing, Inc. will open a computer service center in the financial district. The firm handles bookkeeping and record keeping for the purchase and sale of securities for stock exchange firms. The new office will be located at 42 Broadway.

Informatics Gets 'Pacer' Subcontract

SHERMAN OAKS, Calif. – Under subcontract to Planning Research Corp. for the Rome Air Development Center, Informatics Inc. will help develop, implement, and test Pacer, an on-line CRT console and computer based system being designed to assist photo interpreters and intelligence analysts in the correlation of current, historical, and collateral information. Initial implementation is expected to be accomplished in 18 months. The expanded system is scheduled for operation in three years.

Memory Systems

WALLED LAKE, Mich. – Scientific Control Corp., Dallas, has awarded a $4.3 million contract to Bryant Computer Products for memory systems. Included in the contract were disk files, drum memory systems with controllers, and the design, development, and fabrication of a fast core memory switch to connect the SCC 6700 time sharing computer system with the control processor and associated I/O controllers.

Univac to Share Design

ST. PAUL, Minn. – System design responsibility for the Advanced Surface Missile System for the Navy's new class of DXG destroyers will be shared with Sperry Rand's Univac Federal Systems Division, General Dynamics Corp., and Hughes Aircraft Corp. The Univac system is designed to perform fire, weapons and missile control, and other systems command functions. The purpose of the program is to provide a new surface missile system with increased capabilities and reliable shipboard operation.

Time Sharing Service

MINNEAPOLIS, Minn. – Apache Corp. has selected Computer Time Sharing, Inc. to provide time sharing services for petroleum investment planning. The announcement was made jointly by Allan B. Pettit, CTS director of corporate development, and Phillip C. Byers, manager of investment administration for Apache.

Transcriber Development

NEW YORK – Management Assistance Inc. announced that its wholly owned subsidiary, MAI Equipment Corp., has been awarded "a multimillion dollar contract" for the design, development, and manufacture of data transcribers capable of capturing an operator's key strokes and converting them to codes on computer compatible magnetic tape. The exact amount was not given.

Tacfire System

LOS ANGELES – A subcontract of approximately $900,000 to assist in the design and development of computer programs for the Army's Tacfire system has been awarded by Litton Industries to Planning Research Corp. The purpose of the system is to increase fire support effectiveness through increased first round accuracy, better use of target information, and greater efficiency in determination of fire capabilities. The system will include a completely integrated network of computer centers located in various military levels of command within a field army.

Optical Digital Encoders

STONEHAM, Mass. – The Perkin-Elmer Corp. has awarded Dynamics Research Corp. an additional contract for $701,276 to continue the development and fabrication of optical digital encoders.

Telemax Service To Use Sanders Display Systems

Telemax, Inc. has selected Sanders Associates, Inc., Nashua, N.H., as the prime supplier of the Sanders 720 data display system for a computer reservation system to confirm hotel and motel reservations, car rentals, package tours, airlines, and other aspects of the travel industry. The system links subscribers to a centralized computer center in East Orange, N.J., where reservations are processed in a real-time environment.

The Equitable Life Assurance Society, New York, has ordered a second IBM 360/65 with a 2314 disk drive for its home office EDP installation. The company has a nationwide data communications network linking each of its cashier offices with the home office. The network is controlled by IBM 7740 communications control units and uses 105 IBM 1050 terminal sets.

Orders and Installations

American Computer and Communications Co., Newport Beach, Calif., has ordered one Univac 9400 and six 9300 computer systems valued at about $1.5 million for a network of new computer centers. Installation is to be finished by the end of 1969.

California Blue Shield, San Francisco, has ordered 70 Honeywell Keytapes to be used to write computer input data directly on magnetic tape from a typewriter-like keyboard. The devices are designed to replace punched cards as input media.

Babcock & Wilcox Co.'s research center in Alliance, Ohio, has ordered an EAI 680 analog hybrid computer for use in the simulation and study of scientific and engineering problems. The new unit will be part of an EAI 690 hybrid computing system now in use.

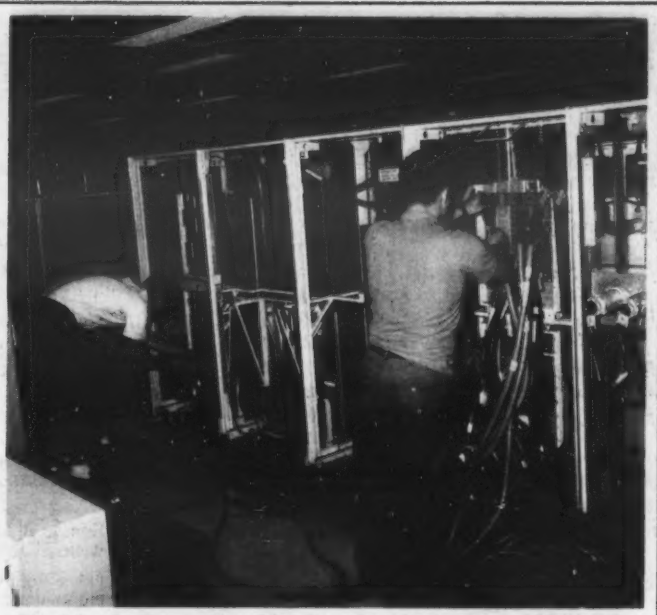
The State Life Insurance Co., Indianapolis, Ind., has purchased a Univac 9300 system for updating the records of policyholders on a daily basis. Scheduled for delivery next May, the system will include five magnetic tape units.

U.S. Steel's Gary Tube Works, Gary, Ind., has ordered a medium scale GE 415 information system for inventory control, production scheduling, and other manufacturing applications. Delivery is scheduled for next September.

Allied Datamation, Inc., Fairfax, Va., has placed an order for an IBM 1450 computer system to be used with an IBM 1240 system for bank data processing.

The University of Wisconsin, Madison, Wis., has acquired a Univac 1108-11 system, valued at $2.8 million. Complementing the new computer network will be high speed communication lines and remote data terminals for solving complex engineering, scientific, and other problems involved in research and development work. Univac 1004 card processor machines and DCT 2000 communications terminals now in use are to be connected to the new system.

A tape drive is trundled out of Citibank's headquarters at 399 Park Ave. on its way to 111 Wall St.



The job of reconnecting 10 miles of cables begins at 111 Wall St. Moving, installing, and testing took 80 hours.

'And for Heavens Sake, Don't Trip Over Anything!'

NEW YORK – One hundred twenty units, making up eight complete computer systems, were recently moved from the First National City Bank's uptown headquarters at 399 Park Ave. to a new office building at 111 Wall St.

The data processing equipment moved supplemented five computer systems already installed at 111 Wall St.

Citibank's equipment is used to handle stock transfers, commercial loans, personal trusts, and checking accounts as well as other applications. Nearly 1.6 million checks a day are processed by the bank using this equipment.

"It was necessary to complete the move over a three day weekend so that the bank's entire data processing operations would function at the start of business Tuesday morning," said H. Lansing Clute, executive vice president.

The electronic equipment was carefully wrapped and crated in pressboard panels with braces for shipment to the new building.

To complete the move with minimum delays, a logistical plan was prepared by Citibank, IBM, and Neptune World Wide Moving.

Once in place, data processing equipment was tested by special diagnostic programs and oscilliscopes to insure proper functioning.

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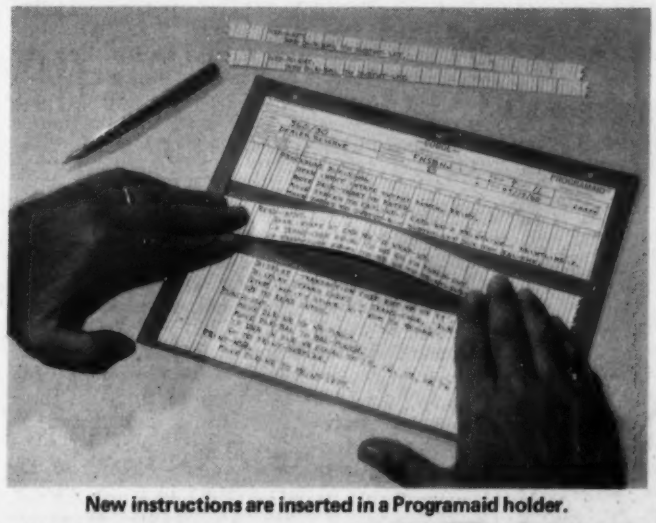
Coding Sheet System 'Eliminates' Errors

New Products

A simple system that produces perfect coding sheets and eliminates erasing, crossing out, recopying, and arrowing has been announced.

The system, called Programaid, consists of cardboard holders with plastic covers and special perforated coding sheets. To insert additional instructions, you simply tear the coding sheet along the proper line and insert the new instructions. Corrections can be made by tearing out the incorrect lines and replacing them or by simply inserting the corrected lines into the holder on top of the incorrect lines.

The basic price is $20 for 25 holders and 30 coding sheets, with lower prices for quantity orders. The holders are reusable. Coding sheets are $25 per 100 or $240 per 1000. S. Bosworth & Associates, 9 Forest Dr., Plainview, N.Y. 11803.



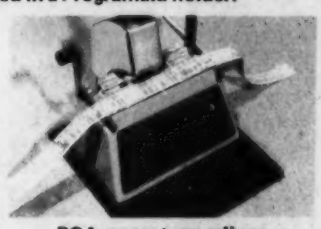
New instructions are inserted in a Programaid holder.

Circular Slide Rules

Four new circular slide rule devices have been designed to convert hexadecimal to decimal, octal and binary to decimal and vice versa, IBM 1401-1440-1460 machine language addresses to decimal number addresses, and IBM 7080 machine language addresses to decimal number languages. Computation Aids Co., 6808 26th Ave. N.E., Seattle, Wash. 98115.

Tape Splicer

A new paper tape splicer, the PCA Thermopress, will splice 5, 7, and 8 channel paper tape with minimal overlap and increased thickness. Tape ends are trimmed by a built-in guillotine, then moistened; the two ends are aligned on the splicer bed with an overlap of one character position. Application of heat and pressure gives an even bond. Jay Smith, Inc., 292 State St. E., Westport, Conn. 06880.



PCA paper tape splicer

Standard Names Western Data As Sales Agent

SHERMAN OAKS, Calif. – Standard Memories, Inc., a magnetic core memory systems manufacturer, has named Western Data Services, Inc. as sales and service representatives.

Western Data, headquartered in Burbank, also has an office in Sunnyvale, which Dominic Imonti was recently named to head.

Standard Memories says its Micra-Stor and Ecom systems, that Western Data will handle, can be delivered in three weeks.

Downtown Data Processing Formed in New York City

NEW YORK – The formation of Downtown Data Processing, Inc. has been announced by Ephraim S. Glasser, president of Automated Personnel International Downtown, Inc. Located at 135 William St., the new firm will handle data processing requirements from keypunch to verifier service to computer time on a 24 hour, 7 day a week basis. Pick up and delivery service will also be included, the announcement said.

Digital Information Devices Formed in Pennsylvania

NORRISTOWN, Pa. – A new manufacturing company, Digital Information Devices, Inc., has been formed here to produce a line of computer input/output devices and man-machine communcations equipment.

The company claims proprietary nature and innovation in the equipment and sees no immediate direct competition in the field. Manufacturing operations are scheduled to begin early next year.

The company was founded by Data Packaging Co. in Cambridge, Mass., and a group of computer engineering personnel from this area: Leon J. Staciokas, president, formerly with Burroughs; Floyd E. Brunell, vice president of operations, formerly with Univac Division of Sperry Rand; and Data Packaging President Otto Morningstar, treasurer.

French Company to Market For Applied Data Research

PRINCETON, N.J. – Applied Data Research, Inc., a computer software and service company, has named Centre D'Analyze et de Programmation as its marketing representative for proprietary software programs in five European nations.

The announcement said that the Paris based firm will market ADR's proprietary software programs, including Autoflow, in France, Belgium, Holland, Switzerland, and England.

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Honeywell Develops Process for Making Disk Packs That Eliminates Dependence on Outside Suppliers

WELLESLEY HILLS, Mass. – Two critical and essential processes in the manufacture of disk packs – blending the special coating material and applying the material to the disk surface – have been refined by Honeywell's Electronic Data Processing Division.

"Development of these methods and of a more durable magnetic iron oxide coating material means we no longer must depend on outside firms for this important phase of our disk pack manufacturing work," said Allan L. Rudell, vice president and assistant general manager.

"Our disk packs now meet or exceed industry standards for smoothness, durability, recording ability, and long life," he added. "The extremely hard recording surface not only prolongs the life of the disk but also reduces the possibility of damage during repetitive use.

Urban League Sponsors an EDP School

LOS ANGELES – An EDP training center for disadvantaged residents has been established by the Greater Los Angeles Urban League with the help of the Bank of America Foundation and IBM.

The Data Processing Training Center, located at 7226 Figueroa St., is located in a former Bank of America data processing facility recently renovated for the project.

The center will offer classes in computer operations, basic programming, and keypunch techniques.

"The fundamental reason for the center and its training programs is to qualify disadvantaged residents for employment in a rapidly growing area of opportunity," said Dr. Frank L. Stanley, Jr., Urban League executive director.

"Only the most needy, who otherwise could not afford such training, will be eligible for the program," Stanley said.

During its first six months of operations, the center is expected to train 50 people and to help place them in jobs.

Instructors John Adams and Yudell Jackson give keypunch instruction to students Velma Runnels and Dwayla Williams at the new training center.

"Eventually, we hope that a minimum of 250 people a year will receive instruction at the center," Stanley said.

The Urban League is responsible for selecting candidates for training, providing counseling and administrative services, and assisting graduates in locating jobs. The foundation has provided the facilities for the center and underwritten the expenses of maintaining the building. IBM has supplied the center's data processing equipment and course materials. It also will provide four instructors.

Equipment will include an IBM computer system, including a card read-punch, a printer, tape and disk drives, and control units. Sixteen other machines used in data processing operations – 13 keypunches, a verifier, a sorter, and a collator – also will be available to the students.

First Course Started

The center's first class began last month with 12 students learning to use keypunch machines.

Computer operator and programming classes will start this month. The six week computer operator course will be offered to 12 students at a time, and programming classes, running 12 weeks, will be made up of 16 students.

All classes will be taught on the basis that the students have had no previous knowledge of the subject, with the exception that keypunch students must have basic typing skills.

"Class schedules will closely match the hours of a regular, full time job," Stanley said. "Students will attend classes from Monday through Friday, and class hours will be geared to the hours observed in thousands of offices. Except for reviewing course material outside of normal class hours, little homework will be required."

The three participating organizations hope eventually to make the center self-sustaining. The Urban League plans to assume the primary instruction requirements, using some of the center's own graduates, by the end of the project's first year.

Control Data Institutes Accredited

MINNEAPOLIS, Minn. – Control Data Institutes in Dallas and Detroit have been accredited by the National Association of Trade and Technical Schools.

Accreditation, in addition to assuring that the schools have met rigid standards, means that students may now apply for federally insured loans under the National Vocational Student Loan Act. These are federally subsidized, low interest, long term loans.

University Center Serves 38 Colleges

RESEARCH TRIANGLE PARK, N.C. – A large scale computer at Triangle Universities Computation Center, linking the Duke, North Carolina, and North Carolina State campuses, will start the new school year working on problems from 35 other colleges and universities in North Carolina.

Dr. Carl M. Rose, Jr., assistant professor of physics at Duke, studies bubble chamber photos projected onto the table via the mirror above. Laboratory assistant Kathy Blair converts data on unusual nuclear particle paths into digital form. This data is then processed by computer to reduce the data into meaningful form for further study by nuclear physicists.

Problems will be fed into an IBM 360/75 – one of the largest computers installed for general educational use – by telephone lines from campuses as far as 300 miles away.

Jointly established 30 months ago by the three universities under a $1.5 million National Science Foundation grant, the computer network has also now become a major factor in the introduction of computing into the curriculums of North Carolina colleges.

State Sponsorship

The North Carolina Computer Orientation Project, sponsored by the State Board of Higher Education, offers computing service and technical assistance to over 100 eligible institutions of higher learning.

When the fall semester peak is reached, the center expects to handle as many as 3000 jobs a day. The bulk of the workload will come from the three universities, relayed from smaller scale computers on each campus.

Morris S. Davis, president and director of the center, said, "System performance has already confirmed that cost sharing a computer can provide a number of economic and technical advantages to schools."

Large Scale Benefits

The availability of an extremely high performance computer – practical only because the three universities share its costs – has:

- Attracted several top educators, scores of outstanding graduate students, and millions of dollars in new grants at each campus for research projects which would be impractical or impossible using smaller, less powerful computers.
- Made it possible to incorporate computer science, now considered an educational necessity, into virtually any logical subject area, exposing broad cross-sections of students on each campus to the techniques and advantages of large scale computing.
- Strengthened cooperation in the data processing operations of the three schools to the point of establishing a common computer program library that eliminates time consuming duplication and generally speeds the educational research process at all three schools.

For the small schools on the network, the shared computer is a practical way of obtaining computer service on their campuses.

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Consumer taste in Christmas cards, such as the one being painted by the Hallmark artist, can now be predicted by the company's computer system.

Information on Sales of Greeting Cards Used to Predict Customer Preferences

KANSAS CITY, Mo. – The moods and manners by which Americans observe their holidays will be recorded in a data bank here beginning this month.

Donald J. Hall, president of Hallmark Cards, Inc., said an IBM 360/65 has been installed and linked to existing equipment. The company will begin to feed into it descriptions of 14,000 cards and related products displayed and sold in 20,000 retail stores.

For the first time, the nation's choices of Christmas cards, Valentines, Easter greetings, Father's and Mother's Day cards, Halloween and Thanksgiving sentiments will be catered to by computerization. The company's greetings for birthdays, anniversaries, and other such personal occasions not linked to a particular season have been electronically recorded and selected since the early 1960s.

The firm processes more than 250,000 wholesale sales of nonseasonal merchandise daily.

Working off reorder tickets received from retailers all over the nation, the computers are programmed to select the greeting card most desired by the public from the company's inventory, pulling from its memory not only national preferences but also taking into account regional variations of taste and even neighborhood ethnic and religious characteristics affecting card purchases.

Tailored to Retailer

The program is tailored so each dealer's likes and dislikes can be considered. For instance, if a dealer dislikes cards featuring smoking or drinking, the computer will see to it that he doesn't receive any.

Christmas order planning, a meticulous chore which previously resulted in months of tedious work for the firm's sales force of more than 700 men, can be accomplished by the Model 65 computer in less than two days, Hall said.

Even more important, the computer can plan a better order for the dealer, he said.

"The computer can see the entire line, evaluate it in terms of what business the dealer did in previous years, and select the right products tailored for each individual dealer, in the right proportion," he said.

Aside from the obvious benefits in planning and filling orders, computerization provides Hallmark researchers with an uncanny insight into fashion trends and moods.

It was the computer, for instance, that picked out a swing in consumer preference for "hot" colors and paved the way for the company's highly successful promotion of paper dresses and paper party units in dazzling color combinations.

Charmers, a group of informal greeting cards featuring breezy sentiments ("Have a bright and breezy, take-it-easy, happy, happy birthday!") also came about because the computer noticed a significant preference in the marketplace for something away from four line and eight line verse.

7070/74, 7080, 7094 FOR SALE

IPS has for sale and delivery in the near future several attractively-priced IBM 7000 series systems. A 7074 10K with 7 729 VI (90KC) tape units can be delivered January 1st. Available for immediate delivery is a very reasonably-priced 7070 10K without tapes. Also for immediate delivery is a 7080 160K system without tapes. For an installation requiring a powerful scientific system, a 7094-I with 13 729 VI's and V's is available Jan. 1, 1969. The 7094 also has a 1401 4K I/O system available as an option. Please call or write for specifications and prices.

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Computer Predicts Football Winners

ATLANTA – A computer will take a mathematical look at the nation's college football teams this season and predict winners and point spreads for each week's top 30 games.

The Honeywell Model 120 computer system at Cox Broadcasting Corp.'s WSB-TV took on the job for the first time last season and correctly predicted the winning team 72% of the time – 337 correct predictions out of 471 games.

"That wasn't bad," said W. Dan Clay, data processing manager at WSB-TV, "but I'm sure the computer will do a better job this season.

Better Data File

"For one thing, we're starting with a better data file. Last year we started with the opinions of sports editors. This year we're starting with statistics. I should think the computer will be able to run about 80 to 85 per cent accurate this season."

The Honeywell computer displays its predictions on a CRT. This is filmed with commentary by WSB-TV Sports Director Carl Snell and appears on the station's Thursday evening news broadcast.

The predictions are for the upcoming weekend round of games.

The films are sent by air express to other Cox television outlets: WHIO-TV, Dayton, Ohio; WSOC-TV, Charlotte, N.C.; WIIC-TV, Pittsburgh; and KTVU, San Francisco.

Popular Project

"We got a tremendous amount of mail on this project," Snell said. "People tell us they enjoy matching their predictions against the computer."

WSB-TV compiled the data file for its computer last season by asking sports editors in several large cities to rank the nation's top teams. The first predictions were largely based on those rankings.

"At first," Clay said, "the computer was right only about 60 to 65 per cent of the time. After all, we were working from opinion. But as the season progressed and we were able to compile hard statistics, the predictions were correct 80 to 85 per cent of the time."

By the end of the season, the computer was reviewing hundreds of scores to make each prediction.

"It scanned the records and scores of the two teams plus the record of all their opponents' opponents," Clay said.

The computer also considered such intangibles as home field advantage, by compiling data on how each team has fared at home for the past four years.

To start the new season, the computer ranked each team on the basis of last year's record, including such factors as the number of returning lettermen.

Computer Triumphs

The Honeywell computer scored several triumphs last year in the face of human scepticism.

It predicted Houston would wallop Idaho by 67 points. Eyebrows were raised, but Houston won by 71 points. The computer predicted mighty Notre Dame would sneak by Miami by only two points. Eyebrows were raised again, but the Irish won – by only two!

Reach Dealers Before Cars

Computer Speeds Printing of Manuals

FLINT, Mich. – By using a computer, Buick this year was able to prepare 41,000 copies of its 1300 page service manual for the 1969 cars in weeks instead of months. Biggest benefit: the manuals were up to date for the first time.

The manual details not only 1969 model service procedures but is a guide to make-ready procedures for customer deliveries.

Buick achieved phenomenal time savings in the manual's production by making extensive use of computer equipment in compiling service data, editing, revising data, and specifying type and layout.

Buick is probably the first automotive company to make such extensive use of computers in preparing service manuals, according to Thomas Ploucha, Buick's general service manager.

Typesetting and layouts for previous manuals usually started in June, ran through late August, and required extensive distribution of supplemental bulletins since the long production process did not permit inclusion of late additions and changes.

Ploucha said concentrated efforts for a quicker and better means for producing service manuals got underway about four years ago.

The first breakthrough came last year, he said, when a 360 page Opel Kadett service manual for 1968 models was produced through extensive use of computers. Its success led to further refinements in the procedure and publication of the 1969 Buick service manual.

This year all data, text, and type specifications were transmitted by wire from a single keyboard in Flint to a computer in Cleveland. The computer then produced magnetic tape which was flown to Long Island and fed into a photocomposing machine which set all type for the manual at speeds up to 10,000 characters a second.

About a week was required for the cutting and pasting process of producing keylines from which press materials were prepared photographically. Final printing, collation, and binding were accomplished in a matter of days instead of the weeks required in previous years.

This new computer process permitted incorporation of 11th hour changes and additions which under former methods could not have been incorporated into the final manual because of time limitations.

Even before this 1969 Buick GS 400 reached the showrooms most Buick dealers had up to date service manuals for it.

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SPA Division Chairmen Vote On Complete Reorganization

CLEVELAND – The St. Louis meeting of the Systems & Procedures Association later this month may be the last international meeting under the present setup. The association is in the process of voting on whether to change its name, and to make sweeping changes in its constitution. Before the St. Louis meeting convenes Oct. 20, the results of the voting are expected to be known.

75% Vote Needed

If the reorganization is approved by 75% of the eligible voters, the name of the association will be changed, the various chapters will have uniform membership criteria for the first time, and the international headquarters will be able to mount an organized membership campaign in the industry. Previously this has not been possible because each of the 109 chapters of the SPA has been able to set its own criteria for membership and international headquarters has been unable, as a result, to solicit or accept memberships. In fact, a member of the society who was moved by his firm might well find himself unacceptable to the chapter in his new area.

New Name Compromise

The suggested new name, "SPA – the Association for Systems Managers," is a rather unwieldy compromise which attempts to preserve the goodwill in SPA while giving the association a face lift. However, the dramatic effect of any name change can be expected to assist the society in its goals to raise its membership by more than 150%. The present membership is about 8000. The goal under the proposed reorganization is 20,000.

Final Step in Chain

So far the proposals have been approved by two international boards for submission to the chapters. The current vote, restricted to the 109 divisional directors, may be the final step in the chain as each director has the power to vote for his particular chapters. The reorganization has been suggested by a management consulting firm, and its recommendations – although not its full report – have been explained to the membership in a brochure.

Seminar Given Twice

Whether it passes or not, the proposal can be expected to cause lively conversation at St. Louis during the 21st Internal Systems Meeting. These discussions may help people discover just where the society is heading.

Youth Shows the Way

Dr. Joseph Hilsenrath, director of the Office of Standard Reference Data, National Bureau of Standards, gets a lesson in data processing from Nat Kuhn, 10, of Princeton, N.J., a member of the Resistors. The Resistors, a group of young New Jersey students which has earned a national reputation for its work with computers, took part in a seminar last month at Worcester Polytechnic Institute, Worcester, Mass., sponsored by the National Bureau of Standards and MIT.

Sigplan Names Wegner Chairman In New Group's First Election

NEW YORK – The ACM Special Interest Group on Programming Languages (Sigplan) has elected Prof. Peter Wegner as chairman. Wegner is an associate professor of computer science at Cornell University, Ithaca, N.Y., and the author of several books dealing with programming languages.

Other Sigplan officers elected include Vice Chairman Philip R. Bagley, a consultant in computer applications in Philadelphia, and Secretary-Treasurer Caral A. Sampson, a senior systems analyst at Applied Data Research in Arlington, Va.

Since this is the first election held by the recently formed group, the new officers will serve an abbreviated term ending June 30. The normal term of office for Sigplan is two years.

'Sirch' Searches Infrared Spectral Index

PHILADELPHIA – A fast computerized search system developed at the Dow Chemical Co. for the ASTM Infrared Spectral Index is now available from the American Society for Testing and Materials. The ASTM-Dow Infrared File Search System was developed for the spectroscopist to use in the laboratory without spending hours in tedious card handling or the need to learn complex codes or computer language.

The system, called Sirch, uses the IBM 1130 computer for rapidly searching the ASTM Infrared Spectral Index File which contains 92,000 entries. All of the entries are stored on three magnetic disks that can be searched at the rate of 1000 entries per second, for a total of less than 8 minutes for the entire file, including data entry and disk changes.

All input/output operations are programmed on a console typewriter. For input, the spectroscopist types the data from an unknown spectrum directly into the computer. After the search, the output from the program is in the form of a typewritten list of the ASTM assigned serial numbers of spectra in the file which match the unknown spectrum. These numbers may be used to look up the name of the compound and also the source of the reference spectrum.

Sirch is available on lease only, with a one year minimum. Price: $500 installation fee plus $90 per month rental.

Table Lookup Option for Mark IV Permits a Reduction in File Size

SHERMAN OAKS, Calif. – The first of several optional special features of the Mark IV File Management System has been announced by Informatics Inc.

The new feature, Table Lookup, said C. Gordon Utt, Mark IV marketing manager, operates as an integral part of Mark IV. It allows a reduction in file size through the use of codes which are automatically translated to produce attractive reports. The previous time consumming task of creating tables and retrieval techniques for processing this type of information is greatly simplified by this special feature.

Mark IV, a proprietary software product of Informatics, is a general purpose file management system now in use with IBM System/360 software in 60 installations in North and South America, Europe, Africa, and Asia.

"Orders are now being taken for Table Lookup for immediate delivery to Mark IV users," said Utt.

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Brandon Forms Subsidiary, Announces Two Purchases

NEW YORK – Brandon Applied Systems, Inc. has announced the formation of a new subsidiary specializing in medical systems and the purchase by that subsidiary of a specialized proprietary package from Gaynes'Way Systems, Inc. in Chicago.

The company also announced the completed acquisition of Ehlers, Maremont & Co., Inc. in Chicago. Terms were not disclosed.

Ehlers-Maremont and its service bureau subsidiary, Public Data Processing Corp., will function as midwest representatives for Brandon clients in Illinois, Indiana, Michigan, Minnesota, Missouri, and Wisconsin, under its own name and present management, with Brandon providing financial and marketing support, Brandon said.

New Medical Subsidiary

The new subsidiary, Brandon/Gaynes Medical Systems, Inc., will be a national operation, initially franchising long term health care data processing packages, Brandon said. It is to be headed by Brandon Vice President Arnold D. Palley.

Neil L. Gaynes, former president of Gaynes'Way, will serve as a director of Brandon/Gaynes and as a consultant to the Brandon organization in improving existing medical systems and in developing new systems, but he will continue his own practice as a consultant and as executive director of the Illinois Association of Homes for the Aged.

Initial Product

The initial product of Brandon/Gaynes will be a fully automated system called Auto-Scribe designed to expedite Medicare expense claim procedures for institutions providing long term medical treatment.

Palley said that the system – which uses optical font adding machines, an NCR optical reader, and a Honeywell 200 computer – reduces clerical efforts by about 80%. The only bookkeeping necessary for the institution is entering individual charges onto the adding machine, which is the only piece of equipment it needs, he said.

New Registrations

COGNITRONICS CORP., 333 Bedford Rd., Mount Kisco, N.Y., manufacturer of audio response units, specialized computer systems, and magnetic drums, filed to register 100,000 common shares, 50,000 to be offered by the company and 50,000 by selling stockholders. Proceeds, at a maximum of $53.375 a share, allocated for acquisitions and working capital. The underwriter is Shields & Co., Inc., New York.

COMPUTER TRANSCEIVER SYSTEMS, INC., 123 Pleasant Ave., Upper Saddle River, N.J., manufacturer of compatible multipurpose portable data communication terminals, filed to register 200,000 common shares. Proceeds, at a maximum of $10 per share, allocated for equipment, working capital, and other corporate purposes. The underwriter is Goldwater, Valente, Fitzpatrick & Schall, New York.

DATA-RAM CORP., Rt. 206, Montgomery Township, N.J., manufacturer of memory stacks and planes, memory systems for use in digital computers, and related products, filed to register 190,000 common shares. Proceeds, at $7 per share, allocated for construction, equipment, and working capital. The underwriter is P.K. Hickey & Co., 50 Broad St., New York.

DI-AN CONTROLS INC., 944 Dorchester Ave., Boston, a data processing equipment manufacturer, filed to register 250,000 common shares. Proceeds, at $8 per share, allocated for debt repayment and working capital. The underwriter is Myron A. Lomasney & Co., New York.

DISCON CORP., 4250 N.W. Tenth Ave., Ft. Lauderdale, Fla., a manufacturer of computer equipment, electronic and electromechanical systems, and related devices, has filed to register $500,000 of 7% convertible subordinated debentures due in 1980. Proceeds, at face value, allocated for debt repayment and working capital. The underwriter is Charles Plohn & Co., 200 Park Ave., New York.

FAIM INFORMATION SERVICES, INC., 520 Fifth Ave., New York, a company offering data communications and processing consulting services, filed to register 225,000 common shares at $2 per share. The underwriter is A.J. Carno Co., Inc., 42 Broadway, New York.

GRANITE EQUIPMENT LEASING CORP., Garden City, N.J., a lessor of equipment, filed to register 400,000 common shares, with warrants attached to purchase an additional 80,000 shares to be offered in units of five shares and one warrant. Price to be set. The underwriter is E.F. Hutton & Co., 1 Chase Manhattan Plaza, New York.

NATIONAL INSTITUTE OF COMPUTER PROFESSIONALS, INC., Suite 124, 1001 Spring St., Silver Spring, Md., an operator of a school offering courses in computer operation, filed to register 250,000 common shares, 190,000 to be offered by the company and 60,000 by a selling stockholder. Proceeds, at $2.50 per share, allocated for expansion and working capital. The underwriter is Hopp & Co., Passaic, N.J.

Gulf Directors OK Merger With University Computing

Special to Computerworld

DALLAS – Gulf Insurance Co. directors, acting after University Computer Co. sweetened the terms, have agreed to a merger of the two Dallas based companies.

The new terms, valued at about $190 million, provide for the exchange of 0.55 University Computing common shares for each of the approximately 2.1 million Gulf common shares outstanding but not owned by University Computing. University Computing owns 700,000 Gulf shares, about 25% of the outstanding stock, which it acquired earlier this year in exchange for 350,000 of its own shares.

The proposal is subject to Gulf stockholder approval.

Option Dropped

Under the previous proposal, each Gulf share not owned by University Computing would be exchanged for half a University Computing share, with an alternate option of exchanging 10 Gulf shares for one share of a new University Computing voting preferred issue, convertible into four common shares. Under the revised terms, the option is no longer available.

As part of the agreed upon terms, a new University Computing subsidiary, Gulf Financial Co., will carry out the transaction and will own Gulf Insurance, its life insurance subsidiaries, and its noninsurance assets.

Gulf has also agreed to withdraw a registration statement, now pending with the Securities and Exchange Commission, which covers a proposed offering of Gulf shares for an indeterminate number of Southwestern Life Insurance Co. shares.

While University Computing already owns 342,437 Southwestern shares, University Computing President Sam Wyly said that it would not be in the company's interest to go ahead with the offer as proposed if University Computing and Gulf merge.

Capital Resources "Valuable"

"The capital resources of the new Gulf Financial Co. will be valuable to the growth program of the University computer utility network and other University Computing companies in the computer field," Wyly said.

University Computing, in a recently released report to stockholders, said that net income for the six months ended June 30 was $2,337,000 (56 cents a share) on revenue of $14,540,000. Restated net income for last year's first half was $1,158,000 (33 cents a share) on restated revenues of $6,891,000, the company said.

Randolph Stockholders Approve Change Into Holding Company

NEW YORK – Randolph Computer Corp. stockholders, at a meeting Sept. 26, approved a reorganization of the firm into a holding company [CW, July 24].

Under the reorganization plan, Randolph will transfer its computer leasing business to one subsidiary and its data processing service business to another, subject to the approval of its lenders and creditors.

Freed of major operating and financial restrictions imposed by debt agreements, the parent company will be able to embark on an acquisition program, Randolph said.

Sunasco Nets 54% of Stock

PHILADELPHIA – Sunasco Inc. said it received 279,000 shares of its $1.65 preferred stock before the Sept. 18 expiration date of an offer to exchange two of its preferred shares for five Commonwealth United Corp. common shares.

Only 382,500 Commonwealth shares were tendered, so only 54.8% of the preferred shares will be exchanged on a prorated basis, Sunasco said.

Sunasco acquired the Commonwealth stock as a partial payment in the sale of its Sunset International Petroleum Corp. subsidiary earlier this year.

Sunasco will officially change its name to Scientific Resources Corp. Oct 11, the same date that the recently approved merger with Mauchly Associates Inc. in Montgomeryville [CW, Sept. 25] is expected to be completed.

The Sunasco-Mauchly merger and the name change were approved Sept. 12.

Acquisitions

Computer Applications Buys Arlington House, Affiliates

NEW YORK – Computer Applications Inc. has acquired the businesses of Arlington House, Inc. and its affiliated companies, Conservative Book Club, Inc. and Nostalgia Book club, Inc. in New Rochelle, for approximately $1.5 million in stock.

The acquired firms will continue to operate under current management as part of the direct mail/graphic arts and publishing division of CAI.

Analysts International Seeks United Capital Investors

MINNEAPOLIS, Minn. – Analysts International Corp., a computer consulting company, has announced the proposed acquisition of the assets of United Capital Investors Corp. for an undisclosed amount of common stock.

The plan, already approved by both boards of directors, still needs stockholder approval.

Leasco Completes Purchase Of Operations Research Inc.

GREAT NECK, N.Y. – Leasco Data Processing Equipment Corp. said last week that it had completed its acquisition of Operations Research Inc. in Silver Spring, Md., for about 67,000 common shares.

Accurate Electronics Corp. Merger With Clary Sought

SAN GABRIEL, Calif. – Clary Corp. has reached an agreement in principal to merge Accurate Electronics Corp., North Hollywood, into its operations.

Terms of the agreement – subject to approval of the Clary board, Accurate Electronics stockholders, and appropriate agencies – call for the exchange of one Clary common share for each six Accurate Electronics common shares held.

Clary is a manufacturer of computers, data recording devices, gyroscopes, and construction automation products. Accurate Electronics makes electronic components and test equipment.

Raytheon Anticipates Increased Profits for 3rd Quarter, Year

LEXINGTON, Mass. – Raytheon Co. is expecting to report third quarter profits of more than $8.8 million (more than 60 cents a share) and full year profits of approximately $31.5 million ($2.15 a share).

Third quarter sales are estimated at $280 million, while full year sales are estimated at $1.15 billion.

These figures compare with the previous year's third quarter earnings of $8 million (56 cents a share) on sales of $270.7 million and full year earnings of $28.6 million ($1.98 a share) on sales of $1.1 billion.

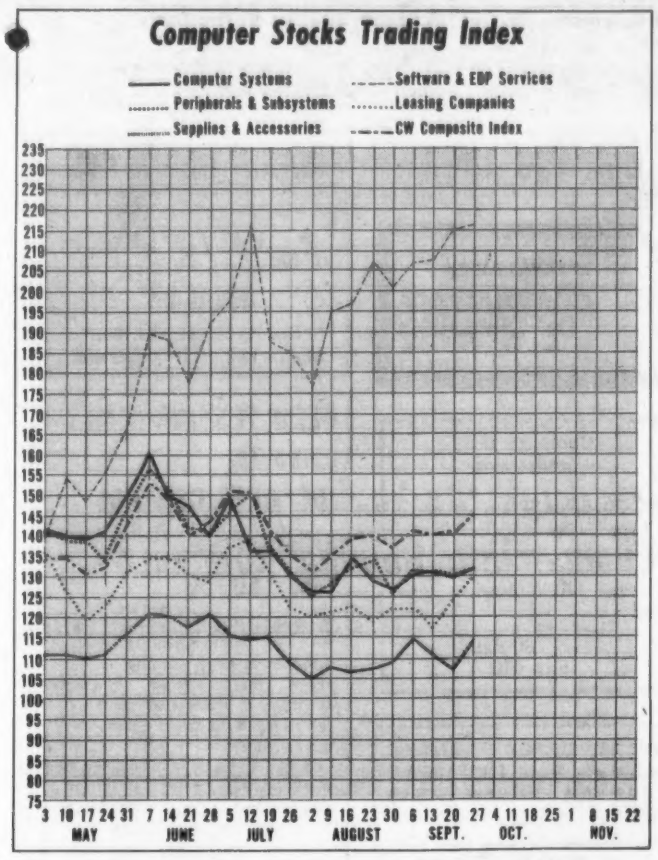
Raytheon President Thomas L. Phillips said that the year earlier figures reflect a 2-for-1 stock split and the acquisition of Badger Co.

Without taking the stock split or the 10% federal income tax surcharge into account, this year's earnings would be about $4.70 a share compared with $3.95 a share last year, he said.

Phillips said increased earnings were attributable to new products, increased efficiency, and improved international profits due largely to ending operations of Elsi Spa in Italy.

Among the company's new products is a digital display system using CRT screens. The systems are being heavily purchased by airlines for use in reservations systems, and the company has a $25 million backlog for the less than year old product, he said.

Phillips expects further profit growth in 1969, and notes that the company is planning to build one or two more manufacturing plants, mainly for missile work.



CW Indexes Up As Market Hits a High

By the CW Financial Staff

Computerworld's Composite Stock Index closed up 4 points (2.83%) at 145 for the week ended Sept. 27 in a market that showed gains in all areas.

The Dow-Jones industrial average closed up 9.38 points (1.01%) at 933.80, the Standard & Poor's industrial average was up 0.64 points (0.58%) to 111.58, the New York Stock Exchange composite average finished up 0.41 points (0.72%) at 57.44, the American Stock Exchange price index closed up 54 cents (1.8%) at $30.50, and the N.Q.B. over-the-counter industrial average was up 0.04 points (0.096%) at 414.32.

Volume on the NYSE was 59,565,520 shares, up from 59,311,130 shares the previous week. Volume on the AMSE was 26,826,260 shares, down from 28,665,905 shares.

For the second consecutive week, no *Computerworld* listed stocks were on the NYSE's 20 most active list.

3 New Highs, 1 New Low

Three *Computerworld* listed stocks closed the week at new highs for the year: Memorex, up 12-1/8 (15.95%) to 88; Computing & Software, up 5-7/8 (10.46%) to 62; and Leasco, up 6 (5.45%) to 116. Aries closed down 2 (12.89%) at 13-1/2, a new low for the year.

Among the *Computerworld* listed stocks, 50 issues closed up, 41 issues closed down, and 8 were unchanged. The previous week, 50 were up, 43 down, and 6 unchanged.

Overall on the New York Stock Exchange, 951 issues were up, 617 issues down, and 130 unchanged, versus the previous week's score of 977 up, 595 down, and 123 unchanged. Two hundred fourty-four issues reached new yearly highs and 15 dropped to new lows, as against 232 new highs and 21 new lows the previous week.

All CW Indexes Up

The five *Computerworld* sector indexes were up for the week. It was the first time since the week ended Aug. 16 that all five showed improvement.

The Computer Systems index closed the week at 132, up 3 points (2.32%). Scientific Controls Corp. showed the biggest gain in the sector, closing up 4-1/2 (11.25%).

The Peripherals & Subsystems index finished at 132, up 2 points (1.54%). The sector contained three – ranging from 18.11% to 24.99% – of the four stocks that gained the most in percentage during the week.

The Supplies & Accessories index closed at 114, up 6 points (5.55%), the largest gain of the five sector indexes.

The Software & EDP Services index finished at 216, up 1 point (0.46%). The sector showed both the biggest percentage loss and gain of the *Computerworld* listed stocks. United Data Centers closed down 2 (18.18%) at 9, while U.S. Time-Sharing closed up 6 (47.99%) at 18-1/2.

The Leasing index closed up 6 points (4.84%) at 130.

Commentary

The Dow-Jones industrial average, which closed at a 1968 high of 938.28 Sept. 24, showed considerable thrust during the week as it pushed past the 930 area where it had been stopped several times in rallies earlier this year.

Although the average dropped the following trading day, it gained again Sept. 27 to close only 4.48 points below the high.

COMPUTER STOCKS: TRADING SUMMARY

WEEK ENDED SEPT. 27, 1968

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	COMPUTER SYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
NYSE	163 3/8	232—157	227 1/8	* Burroughs	— 5 3/8	— 2.39	+ 39.02
NYSE	67 3/4	110— 54	64 1/2	Collins Radio	+ 2	+ 3.20	— 4.80
NYSE	101 1/2	174— 95	128	* Control Data	— —	— —	+ 26.11
AMSE	102	160— 95	139 1/2	* Digital Equipment	+ 11	+ 8.56	+ 36.76
NYSE	87 1/4	100— 81	85 5/8	General Electric	— 1/2	— 0.58	— 1.90
NYSE	60	91— 59	76 3/4	Hewlett-Packard	— 2 1/8	— 3.00	+ 27.90
NYSE	93 1/8	144— 89	124 3/4	* Honeywell	+ 3 3/4	+ 3.00	+ 33.96
NYSE	288 1/2	375—280	332 1/4	* IBM	+ 1 1/4	+ 0.37	+ 15.16
NYSE	103 7/8	153— 90	134 3/4	* National Cash Register	— 7/8	— 0.65	+ 29.71
NYSE	46 7/8	55— 44	49 3/4	RCA	+ 1 7/8	+ 3.91	+ 6.13
NYSE	39 1/8	53— 34	45 1/4	Raytheon	+ 3/4	+ 1.68	+ 15.62
OTC	22 1/2	66— 20	44 1/2	* Scientific Controls Corp.	+ 4 1/2	+ 11.25	+ 97.00
NYSE	78 3/4	114— 72	88 1/8	* Scientific Data	+ 2 7/8	+ 3.37	+ 11.90
NYSE	45	63— 42	46 3/8	* Sperry Rand	+ 1 1/8	+ 2.49	+ 3.05
AMSE	22 1/2	39— 20	29 1/4	* Systems Engineering Labs.	— 1/8	— 0.50	+ 29.91

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING	PERIPHERALS & SUBSYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
NYSE	58 3/8	91— 52	86 1/8	Addressograph-Multigraph	+ 1/4	+ 0.29	+ 47.53
OTC	21	85— 45	55	Alphanumeric	— 2	— 3.51	+161.90
NYSE	29	37— 26	34 7/8	Ampex	+ 1/4	+ 0.72	+ 20.26
OTC	17 1/4	27— 15	21 1/4	Bolt, Beranek & Newman, Inc.	+ 4 1/4	+ 24.99	+ 23.19
NYSE	13 1/2	20— 12	17 1/8	Bunker-Ramo	+ 1/4	+ 1.48	+ 26.85
AMSE	32 1/8	50— 27	39 7/8	* Calcomp	+ 3/8	+ 0.95	+ 24.12
OTC	24 1/2	49— 20	39	Cognitronics	+ 1	+ 2.63	+ 59.12
OTC	12	17— 10	17 1/8	Computer Equipment	— 1/8	— 0.76	+ 42.71
OTC	15 1/4	23— 13	19	* Data Products	+ 1 5/8	+ 9.35	+ 24.59
OTC	19 1/4	27— 16	19 1/2	* Digitronics	— —	— —	+ 1.30
OTC	39	57— 32	44 1/2	* Electronic Memories	+ 1 1/2	+ 3.48	+ 14.10
OTC	10	20— 9	15	* Fabri-Tek	— 1 1/8	— 6.98	+ 50.00
OTC	34	71— 28	56	Gerber Scientific	— 2	— 3.45	+ 64.70
OTC	12 1/2	26— 10	23	Information Displays	+ 2	+ 9.52	+ 83.93
AMSE	16 7/8	52— 14	36 3/8	Milgo Electronics	+ 1 3/8	+ 3.92	+115.55
AMSE	57 1/2	108— 54	78 1/8	* Mohawk Data Sciences	+ 3 5/8	+ 4.86	+ 35.86
OTC	74	138— 71	107	* Optical Scanning Corp.	+ 4	+ 3.88	+ 44.59
OTC	18	42— 16	37 1/2	Photon	+ 5 3/4	+ 18.11	+108.33
AMSE	25 5/8	38— 20	30 1/4	* Potter Instrument	+ 7/8	+ 2.98	+ 18.05
OTC	40 1/4	99— 38	84 1/2	* Recognition Equipment Corp.	+ 1/2	+ 0.59	+109.93
AMSE	16	29— 14	23 1/8	Rixon Electronics	— 1 3/8	— 5.62	+ 44.53
NYSE	46 1/8	66— 42	51 1/8	Sanders	— 7/8	— 1.70	+ 10.84
OTC	47	155— 53	80	Scan-Data	+ 15	+ 23.07	+ 70.21
OTC	40 1/2	51— 35	39 1/2	* Tally Corp.	— 1 1/2	— 4.00	— 2.49
NYSE	242 1/4	321—229	276 3/4	Xerox	— 19 1/2	— 6.59	+ 14.24

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	SUPPLIES & ACCESSORIES	WEEK NET CHANGE	WEEK % CHANGE	%CHANGE FROM BASE
OTC	48 1/2	64— 37	44 1/2	* Acme Visible	+ 1/2	+ 1.14	— 8.29
NYSE	20 1/2	32— 19	19 3/4	Adams-Millis	— 1 5/8	— 7.61	— 3.66
OTC	13 5/8	21— 13	19 3/4	* Baltimore Business Forms	— 1/4	— 2.00	+ 44.95
AMSE	27	44— 21	29	* Barry Wright	— 1	— 3.40	+ 7.41
OTC	31 1/4	40— 26	35	Data Documents	— 1/2	— 1.41	+ 11.91
OTC	27 1/4	38— 26	34 1/2	* Ennis Business Forms	+ 1 1/2	+ 4.54	+ 26.60
NYSE	84 1/8	119— 81	104 1/8	* 3M Company	+ 1/4	+ 0.24	+ 23.71
NYSE	58	88— 48	88	* Memorex	+ 12 1/8	+ 15.95	+ 51.72
OTC	27 1/4	32— 25	27 7/8	* Moore Business Forms	— 1/4	— 0.89	+ 2.29
NYSE	57 1/4	76— 47	75	Nashua Corp.	+ 1 1/4	+ 1.69	+ 31.00
OTC	31 1/4	56— 30	48	Reynolds & Reynolds	— 1/2	— 1.20	+ 53.58
OTC	34 1/2	35— 24	28 1/4	* Standard Register	+ 1/2	+ 1.80	— 18.12
NYSE	37 3/4	44— 30	34	* Uarco	— —	— —	— 9.94
AMSE	14 1/4	23— 13	20 5/8	Wabash Magnetics	— 2 1/2	— 10.82	+ 44.73
OTC	25 3/4	36— 24	31	* Wallace Business Forms	+ 1 1/2	+ 5.08	+ 20.39

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	SOFTWARE & EDP SERVICES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	7 1/2	25— 7	15	Advanced Computer Techniques	+ 3/4	+ 5.26	+100.00
OTC	17	33— 14	27	* Applied Data Research	+ 3 1/2	+ 14.89	+ 58.82
OTC	15 1/2	124— 13	13 1/2	* Aries	— 2	— 12.89	— 12.89
AMSE	47	60— 42	54 1/2	Automatic Data Processing	+ 1 3/8	+ 2.59	+ 15.95
OTC	4	19— 4	14	Automation Sciences	— 1/2	— 3.45	+250.00
OTC	4 1/2	21— 3	21 1/2	* Brandon Applied Systems	+ 1/2	+ 2.38	+377.71
AMSE	22 7/8	43— 20	23 3/8	Computer Applications	— 3/8	— 1.58	+ 2.18
OTC	5	13— 7	12 3/4	Computer Environments	— 3/4	— 5.45	+155.00
OTC	30	62— 24	61	Computer Network	— 1	— 1.61	+103.33
AMSE	40	64— 36	49 1/2	* Computer Sciences	— 1 1/4	— 2.47	+ 23.75
OTC	39	62— 28	31	* Computer Usage	— —	— —	— 20.52
AMSE	36 1/2	62— 36	62	* Computing & Software	+ 5 7/8	+ 10.46	+ 69.82
OTC	12 1/2	39— 10	35	Datamation Services	— 4	— 10.70	+179.99
OTC	12 1/2	20— 9	10 3/4	* Digitek	— 3/4	— 6.53	— 14.00
AMSE	38 3/8	52— 26	29	Electronic Computer Prog. Inst.	+ 1 1/4	+ 4.50	— 24.49
OTC	35	68— 32	55	* Informatics	— —	— —	+ 57.14
OTC	21	28— 14	20	Matrix Corp.	+ 1/2	+ 2.56	— 4.76
OTC	11 1/2	69— 8	65	* National Computer Analysts	— 3	— 4.46	+465.22
AMSE	31	45— 28	45 3/4	Planning Research	+ 3 3/4	+ 8.93	+ 47.58
OTC	**	**	13	Programming & Systems	— 1	— 7.14	**
OTC	9	15— 8	9	Software Systems	— 1/4	— 2.74	— —
OTC	20 1/2	22— 12	12	TBS Computing Centers, Inc.	— 1	— 7.70	+485.36
OTC	**	**	9	United Data Centers	— 2	— 18.18	**
OTC	63	158— 57	163	University Computing	+ 7	+ 4.49	+158.73
OTC	**	**	**	URS Systems Corp.	**	**	**
OTC	**	**	18 1/2	U.S. Time-Sharing	+ 6	+ 47.99	**

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	LEASING COMPANIES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	18	**	47	Boothe Computer	— 4	— 7.85	+161.11
OTC	19 1/4	**	**	Chandler Leasing	**	**	**
OTC	4 1/4	23— 4	23	Computer Exchange	— —	— —	+441.50
AMSE	25 1/8	36— 21	28 1/4	* Computer Leasing	+ 1 7/8	+ 7.11	+ 12.44
OTC	12 1/4	19— 11	13 1/2	* Cyber-Tronics	+ 1/2	+ 3.85	+ 10.20
AMSE	106 5/8	184— 88	109 3/8	* Data Proc. Financial & General	+ 3	+ 2.82	+ 2.57
OTC	12 1/2	17— 8	10 1/4	Datronic Rental	+ 5/8	+ 6.49	— 18.00
OTC	20	59— 18	44 1/2	Dearborn Computer	— 1/2	— 1.16	+122.49
OTC	13 1/4	19— 12	16 1/4	* DPA, Inc.	— 1 5/8	— 9.10	+ 22.64
AMSE	28 3/4	43— 27	33 3/8	* Greyhound Computer	+ 2 7/8	+ 9.42	+ 16.08
AMSE	28 1/8	69— 36	49 1/4	Granite Equipment Leasing	— 1/8	— 0.26	+ 75.11
AMSE	49	116— 41	116	* Leasco	+ 6	+ 5.45	+136.73
OTC	5	14— 5	11	Lectro Computer Leasing	— —	— —	+120.00
AMSE	30 3/4	63— 27	60	* Levin-Townsend Computer Corp.	+ 8 3/4	+ 17.07	+ 95.12
OTC	10 1/2	16— 7	8 1/2	* LMC Data, Inc.	— —	— —	— 19.05
OTC	10 7/8	16— 10	10 1/2	* Management Assistance	— 1/4	— 2.33	— 3.45
AMSE	41 5/8	53— 25	37	National Equip. Rental	— 2	— 5.17	— 11.18
AMSE	38	64— 35	47 3/4	* Randolph Computer Corp.	+ 7/8	+ 1.86	+ 25.65
OTC	10 1/2	46— 10	46	System Capital Corp.	— 1/2	— 1.08	+338.05
AMSE	10 7/8	21— 10	20 7/8	U.S. Leasing	— 1/8	— 0.60	+ 91.95

*Companies included in Computerworld's stock trading index for each sector.

Want to Move Your Fortran Programs To New System? Well, 'Fivetran' Them!

ARLINGTON, Va. – If you have some Fortran programs around which you want to run on another computer system, you can now have them converted, and generally cleaned up in the process, for 50 cents a card.

Computing Technology Inc. which has started offering the service (called Fivetran), says that it can handle the Fortran II and IV compilers of 11 major computer manufacturers. The firm maintains details of the conversion problems involved with each of the various compilers, and uses both eyeball and a parameterized translation program to prepare the documentation which goes back to the customer. Turnaround time is estimated at 72 hours.

Conversion and Bench Marks

The advantages of the system are basically the quick turnaround and the ease of the conversion. In some cases it may be useful to prepare bench marks for the various new systems under consideration, in others simply to allow the programs to be converted for use on more than one system. The output program is always U.S.A. standard Fortran, so that conversion to later model machines will be considerably smoother.

Where Fivetran Came From

Art Newfield of Computing Technology told *Computerworld* that naming the service had been difficult.

"We eventually came up with the name 'Fivetran,'" he said, "because, after all, it's what you do with Fortran programs when you want to bring them up to date."

Two Phone Line Tests Are Scheduled For Remote Meter Reading System

Special to Computerworld

MIDDLETOWN, Conn. – The Southern New England Telephone Co. has approved tests to be made early next year for remote meter reading, using the patented equipment of a private company, Ripley Corp. F.A. Rudolph, president of Ripley, said that the tests were to determine technical, rather than economic, aspects of the system.

Another set of tests, this time with AT&T and Bell Laboratory equipment, is also scheduled for early 1969, he said.

In the earlier tests, the Southern New England Telephone Co. will connect the telephone system to Ripley equipment through data couplers. The system will use an answer relay to connect the Ripley meter reading equipment to the telephone line during the read cycle. Rudolph said Ripley previously had successfully completed similar but much less extensive tests utilizing its own equipment exclusively.

In the AT&T test, Ripley equipment will be connected to a more conventional telephone circuit without data couplers but with special central office telephone equipment that makes it possible to "read" the meter momentarily without ringing the subscriber's telephone. The initial phase of this test will use special telephone lines. If successful, the test will be expanded to use regular telephone lines to the homes of utility customers. The same Bell and AT&T equipment to be used by Ripley is also available to other companies, it was noted.

Rudolph said Ripley has found a substantially greater interest in remote meter reading among gas utilities than electric utilities because of the high cost of moving existing gas meters to the outside of a building.

Using Ripley equipment, a utility company is able to read its meters without having a man enter the buildings in which they are located. Ripley automatic data recorders and processing equipment feed the information into computers for automated billing.

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BOX No. 4102

'Poverty School Opens in Ghetto To Teach EDP

(Continued from Page 1)

Although the manual dexterity of its first 40 pupils is excellent, the institute has found it necessary to teach remedial reading to some, Mann said. The school also gives the students tips on how to dress and conduct themselves in a business atmosphere, he said.

The school's main selling point to industry will be the high performance standards set for its graduates, he said.

"A great majority of the current manpower requirements are in the computer input/output field," Mann said. "Our courses in computer input technology will provide a background to enable graduates to obtain positions as beginners.

In addition to keypunches, verifiers, and Teletypes, the school is using NCR data recorders and Sanders data display systems.

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Standards Institute Decides To Consider PL/I Standard

Special to Computerworld

ARMONK, N.Y. – Armed with a copyrighted but uncirculated PL/I manual, the U.S.A. Standards Institute last week decided to consider whether PL/I should be recommended as a standard language. An ad hoc committee will be appointed.

The decision was based on a recommendation by the X3.4.2C subcommittee. However, the subcommittee's report was disapproved by the full committee, and therefore was not circulated, according to Elliot C. Nohr of IBM, then chairman of the subcommittee. Copies of the report allegedly have been distributed to IBM marketing personnel [CW, Oct. 2].

Nohr told *Computerworld* that the report was disapproved because of disagreement over the criteria suggested for approving a standard PL/I.

"At the same time we were writing the report, another committee was changing the ground rules," he said. Nohr said Peter Ingerman of RCA was the head of the other committee.

Yet Another PL/I Manual

Nohr said that IBM has submitted to the institute a special PL/I manual, copyrighted and dated March 11, 1968, which contains parts of the language that IBM considers suitable for standardization. The manual, which covers areas already implemented, has not been otherwise distributed, Nohr said.

Asked when he felt PL/I standardization might be practical, Nohr said that he would not expect such action for two or three years.

"Standardization takes time," he said.

University Computing Co. Buying a Common Carrier

(Continued from Page 1)

named president of the new subsidiary. Sy Joffe is executive vice president, and Wedward A. Berg is vice president of operations. Microwave Transmission's initial technical staff of 25 will operate from three regional offices in Dallas, Los Angeles, and Washington, D.C.

Earlier Plan Dropped

University Computing has been trying to get into the communications business for some time and made a tender offer in May of $44 per share for 750,000 shares – nearly 10% – of Western Union's outstanding common stock.

While the company said at the time that it viewed the move as "an investment," many Wall Streeters saw it as the first step in a takeover.

UCC, however, ran into opposition and subsequently withdrew its offer when Western Union began talking merger with Computer Sciences Corp. [CW, June 5].

The Computer Sciences-Western Union talks were subsequently broken off [CW, Aug. 14], apparently because American Telephone & Telegraph Co. threatened to suspend negotiations to sell its teletypewriter service (TWX) to Western Union. The Federal Communications Commission had recommended that TWX and Western Union's similar Telex service be combined. Talks began in 1966.

University Computing, commenting on the breakoff of Computer Sciences-Western Union talks, said Aug. 5 that it had no further interest in Western Union, but was planning to create its own common carrier data network.

The water level in this goldfish tank is regulated by Honeywell's new industrial control computer system. Honeywell says engineers without programmer training can write process control programs for the system using a high level language with control functions.

Now - Standard Software For H'well Process Control

FRAMINGHAM, Mass. – Tim Cronin, marketing vice president for Honeywell's Computer Control Division, presented a new computer here last week – and explained that it was for engineers who had experience in process control, but not in computer programming. The new system, called the Series 16 Industrial Control System, was the first process control system which a vendor had supplied with standard, home grown software, he said.

The reason for the innovation, he said, was because the shortage of process control engineers who are also programmers had prevented the industry from achieving its targets in the past.

In 1959, he said, it had been estimated that 1965 would see over a thousand industrial control systems in operation – but in practice the industry fell short of this figure by 60%. As a result all the computer companies involved lost money, he said.

The reasons for the failures, he said, were the lack of willingness of computer manufacturers to take complete responsibility for the installations, and costs (programming often exceeded the cost of computing equipment), which were often exhorbitant.

He felt the situation was still unsatisfactory with the majority of systems going into the few areas where expertise had developed. "The power and petrochemical industries account for about 60% of all existing systems," he said, "the power industry because it shared its know-how among its members, and the petrochemical industry because it was willing to hire qualified, experienced, and expensive manpower to do the job."

'Table' Programming

By contrast, the new Series 16 line was specifically designed to reduce the software problem. By simply filling in tables, he said, a process engineer can "program" a 200 loop system in as little as two weeks. A real-time Fortran system also is available for custom programs. More software packages – including application packages for specific industries – are expected later.

PL/I Is Rated Against Other High Languages

(Continued from Page 1)

the test programmers, including those used for testing the business applications, held mathematics degrees.) The ability to modify statements and to handle complicated logic also were rated as superior.

Deficiencies included the difficulty of learning the language, its unsuitability for nonprofessional programmers, and its relationship with Cobol.

There was almost complete unanimity about the difficulty of learning the language. Both the programmers and the analysts pointed out the comparative simplicity of the Cobol and Fortran statements, their greater directness, and their features for handling business and scientific problems respectively. One commented that the many additional features of PL/I "tended to confuse the situation." Similar remarks were made by the programmers who compared PL/I with Jovial.

Cobol Better for Payroll

The study found that for ordinary dollars and cents operations, as typified by a payroll operation, PL/I was inferior to Cobol in almost every way. However, problems were involved when writing a Cobol run for such work as an input edit, verifying fields as being alphabetic, etc. Here the results were in some ways inconclusive, with the mathematically trained programmer reporting in favor of PL/I, and the analysts disagreeing with some of their opinions after noting that these contradicted their earlier reports.

Preliminary Data Released On 'World Wide' Systems

WASHINGTON, D.C. – The preliminary specifications for the $150 million World Wide Military Command and Control System (WWMCCS) were issued to about 50 potential vendors last week, as forecast in *Computerworld*.

The specifications showed that a considerable amount of rethinking to obtain real competition for these massive procurements had taken place, and that more changes were contemplated. However, Col. Raymond Jones of the Air Force Electronic System Division told *Computerworld* that currently the concept of "prime contractors" rather than segmented contracts was still firm policy.

He also said that as a result of conversations with manufacturers over the past few months, he was convinced that the requirement for the provision of a Jovial compiler would not make the specifications too restrictive. Apparently a number of manufacturers are seriously contemplating providing compilers although only IBM, GE, and Philco-Ford are publicly known to be working on such compilers.

The use of live benchmarks during the selection process, which has been attacked by Bryant Computer Products as be[ca]use of restrictive bidding, also retained as part of the [fi]nal specifications.

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